**Investigating Fungal Metabolites for their Potential as Anti-Cancer Agents**

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**Abstract**

Breast cancer is one of the most common cancers affecting women worldwide. Despite the significant advances in diagnosing and treating this disease, the search for effective therapies continues. Fungi produce diverse secondary metabolites with potential anti-cancer activity, making them a promising source of new therapeutic agents. Our findings demonstrate that SM03, a fungal secondary metabolite produced by specific marine fungi, exhibits an anti-cancer effect on breast cancer cells. SM03 significantly reduced the viability of MCF-7, MDA-MB-231 and MDA-MB 468 breast cancer cell lines in a dose-dependent manner. SM03 has shown to induce ROS generation, which can lead to oxidative stress and subsequent cell death. Further in-silico studies involving molecular docking and MD simulations of SM03 demonstrated the stable binding of SM03 to specific tumour-associated proteins, revealing its potential as a promising therapeutic agent.

**Keywords:** Breast cancer**,** SM03, marine fungi, anti-cancer activity.